

Workshop Proceedings

Exercise Compliance: Does the US Air Force Have Unique Opportunities?

Prepared for: Performance Enhancement Division
Force Enhancement Department
USAF School of Aerospace Medicine, Brooks AFB TX

BARBARA PALMER
Senior Human Factors Analyst
AFRL/HEC/HSIAC

NEAL BAUMGARTNER
Senior Analyst
AFRL/HEC/HSIAC

STEFAN H. CONSTABLE
Chief, Performance Enhancement Division

Workshop Proceedings

Exercise Compliance: Does the US Air Force Have Unique Opportunities?

Prepared for: Performance Enhancement Division
Force Enhancement Department
USAF School of Aerospace Medicine, Brooks AFB TX

BARBARA PALMER
Senior Human Factors Analyst
AFRL/HEC/HSIAC

NEAL BAUMGARTNER
Senior Analyst
AFRL/HEC/HSIAC

STEFAN H. CONSTABLE
Chief, Performance Enhancement Division



1 November 2001

Distribution Statement A: Approved for public release; distribution is unlimited

REPORT DOCUMENTATION PAGEForm Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 11/01/2001	3. REPORT TYPE AND DATES COVERED Proceedings: 16 August 2001	
4. TITLE AND SUBTITLE Exercise Compliance: Does the US Air Force Have Unique Opportunities?		5. FUNDING NUMBERS SPO700-98-D-4001	
6. AUTHOR(S) Barbara Palmer, Neal Baumgartner, and Stefan H. Constable			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) HSIAC Program Office AFRL/HEC/HSIAC Bldg. 196 2261 Monahan Way WPAFB, OH 45433-7022 Commercial: (937) 255-4842 DSN: 785-4842		8. PERFORMING ORGANIZATION REPORT NUMBER HSIAC-PR-2001-001	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Force Enhancement Department USAF School of Aerospace Medicine 311 th Human Systems Wing Brooks Air Force Base, TX		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES This document contains proceedings for the workshop held at Brooks AFB on 16 August, 2001 relating to exercise compliance. A HSIAC Review and Analysis containing information relevant to exercise compliance and the military services may be found in <i>Exercise Compliance: Does the US Air Force Have Unique Opportunities?</i> (HSIAC-RA-2001-007)			
12a. DISTRIBUTION / AVAILABILITY STATEMENT DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE A
13. ABSTRACT (Maximum 200 Words) This publication documents the proceedings of an exercise compliance workshop sponsored by the US Air Force School of Aerospace Medicine's Performance Enhancement Division and held in conjunction with a Human Systems Information Analysis Center (HSIAC) <i>Review & Analysis</i> entitled, <i>Exercise Compliance: Does the US Air Force Have Unique Opportunities?</i> Military and civilian exercise science and exercise behavior subject-matter experts gathered at Brooks AFB, TX on 16 August 2001 purposed to seek consensus, opinions, and approaches on topics relevant to the Air Force's opportunities to enhance exercise compliance and adherence in its members. These proceedings and the accompanying R&A document address and document the topic with the goal of providing a scientific base and related analyses for policy and decision-making. After opening remarks, a presentation covering HSIAC function, products for the Air Force, and specific work on this exercise compliance project, and a briefing/discussion on Air Force physical fitness history, tests, standards, current issues and proposed direction, discussion ensued. The main points of discussion were: exercise program motivators, awards, education and marketing to troops and commanders, physical fitness testing, mandatory physical fitness activity, providing a variety of activities, other techniques, and discussion leading to consensus. R&A Reviewers' suggestions for discussion topics are included.			
14. SUBJECT TERMS Physical Activity, Physical Fitness, Exercise, Fitness, Exercise Compliance Exercise Motivation			15. NUMBER OF PAGES 26
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

20020220 070

TABLE OF CONTENTS

FOREWORD	2
EXECUTIVE SUMMARY.....	4
PARTICIPANTS	5
OPENING SESSION.....	8
DISCUSSION ON EXERCISE PROGRAM MOTIVATORS	10
DISCUSSIONS	12
Awards	12
Education and Marketing to Troops and Commanders.....	12
Physical Fitness Testing	13
Mandatory Physical Fitness Activity	14
Providing a Variety of Physical Fitness Activities	14
Other Techniques	14
DISCUSSION LEADING TO CONSENSUS.....	16
SUMMARY / CONSENSUS	18
Assess Current Status.....	18
Conduct Education / Marketing / Training.....	18
Discover and Employ Lessons Learned and Best Practices	19
Evaluate Physical Fitness Tests and Standards	20
Justify and Implement Programs.....	20
Conduct Program Maintenance	20
Integrate Program Success Factors	21
Motivational strategies	21
Attrition avoidance.....	21
Occupation related fitness and exercise adherence	22
APPENDIX A---Agenda August 16 Exercise Compliance Workshop	23
APPENDIX B-- Reviewers' Suggestions for Discussion Topics.....	24

FOREWORD

This publication documents the proceedings of an exercise compliance workshop held in conjunction with a Human Systems Information Analysis Center (HSIAC) *Review & Analysis* entitled, *Exercise Compliance: Does the US Air Force Have Unique Opportunities?* Military and civilian subject-matter experts gathered at Brooks AFB in August 2001 to reach consensus on this topic. This work was performed by the HSIAC for the US Air Force School of Aerospace Medicine's Performance Enhancement Division.

PROCEEDINGS

EXERCISE COMPLIANCE WORKSHOP

US AIR FORCE SCHOOL OF AEROSPACE MEDICINE

AUGUST 16, 2001 BROOKS AFB, TEXAS

The Human Systems Information Analysis Center (HSIAC) has supported several projects for the USAF School of Aerospace Medicine (USAFSAM) by providing a scientific base and related analyses for policy and decision-making. HSIAC generates a scientific review of relevant literature, and submits this draft to subject-matter experts whom HSIAC invites to read and critique. Reviewers typically submit written comments and attend a workshop where the crucial issues are discussed. This publication contains comments from exercise science and exercise behavior subject-matter experts who submitted comments after reading the draft HSIAC *Review & Analysis* entitled, *Exercise Compliance: Does the US Air Force Have Unique Opportunities?* Additionally, this proceedings document summarizes the discussions that took place during the Exercise Compliance Workshop, sponsored by USAFSAM and supported by HSIAC. The workshop was held at USAFSAM on Brooks AFB, TX on August 16, 2001.

The purpose of the workshop was to seek consensus, opinions, and approaches on topics relevant to the Air Force's opportunities to enhance exercise compliance and adherence in its members. Dr. Stefan H. Constable, Chief, Performance Enhancement Division, Force Enhancement Department, USAFSAM, gave opening remarks and facilitated the workshop. Ms. Barbara Palmer, Deputy Director, HSIAC, gave a presentation covering HSIAC function, products for the Air Force, and specific work on this exercise compliance project. Dr. Neal Baumgartner, Senior Analyst, HSIAC, addressed Air Force physical fitness history, tests, standards, current issues and proposed direction. Discussion followed, and the main points of discussion and consensus are documented here.

EXECUTIVE SUMMARY

This publication documents the proceedings of an exercise compliance workshop sponsored by the US Air Force School of Aerospace Medicine's Performance Enhancement Division and held in conjunction with a Human Systems Information Analysis Center (HSIAC) *Review & Analysis* entitled, *Exercise Compliance: Does the US Air Force Have Unique Opportunities?* Military and civilian exercise science and exercise behavior subject-matter experts gathered at Brooks AFB, TX on 16 August 2001 to seek consensus, opinions, and approaches on topics relevant to the Air Force's opportunities to enhance exercise compliance and adherence in its members. These proceedings and the accompanying R&A document address and document the topic with the goal of providing a scientific base and related analyses for policy and decision-making.

After opening remarks, a presentation covering HSIAC functions, products for the Air Force, and specific work on this exercise compliance project, and a briefing/discussion on Air Force physical fitness history, tests, standards, current issues and proposed direction, discussion ensued. The main points of discussion were: exercise program motivators, awards, education and marketing to troops and commanders, physical fitness testing, mandatory physical fitness activity, providing a variety of activities, other techniques, discussion leading to consensus, and finally consensus. R&A reviewers' suggestions for discussion topics are included.

The subject matter experts reached consensus on the following exercise compliance initiatives for the Air Force to address:

1. Assess current status of the force to include assessment of physical activity among members and a readiness (to exercise) stage assessment.
2. Conduct education, marketing and training in physical activity to both members and senior leadership.
3. Discover and employ lessons learned and several suggested best practices.
4. Evaluate physical fitness tests and standards for commonality, connectivity, standardization, alternatives and graded metrics.
5. Justify and implement programs, determining goals and objectives, baseline scores and beliefs, and providing education early in program.
6. Conduct program maintenance, targeting motivational support for the long term.
7. Integrate program success factors such as support group concepts and goal setting.
8. Develop motivational strategies to increase and maintain adherence.
9. Avoid attrition via awareness and counter strategies and techniques, *i.e.*, address barriers to exercise.
10. After addressing health-based exercise recommend to senior leadership development of occupation-related fitness and exercise adherence.

PARTICIPANTS

Neal Baumgartner, Ph.D.
HSIAC Senior Analyst
USAFSAM/FEP
2602 West Gate Road
Brooks AFB, TX 78235-5252
DSN 240-5060 Comm 210 536-5060
Neal.baumgartner@brooks.af.mil

Neal Carlson, LCDR, USN, Ph.D.
Head, Health and Fitness Branch, Navy Personnel
5720 Integrity Drive
Millington, TN 38055-6010
901 874-4242
p651f@persnet.navy.mil

Stefan H. Constable, Ph.D.
Chief, Performance Enhancement Division
USAFSAM/FEP
2602 West Gate Road
Brooks AFB, TX 78235-5252
DSN 240-4613 Comm 210 536-4613
Stefan.constable@brooks.af.mil

Andrea Dunn, Ph.D.
Research Scientist
The Cooper Institute for Aerobics Research
12330 Preston Road
Dallas, TX 75230
972 341-3200
Adunn@cooperinst.org

Pete Flatten
Staff Exercise Physiologist
USAF Fitness Program Office
311 HSW/YAMA
7909 Lindbergh Dr, Bldg 578
Brooks AFB, TX 78235-5252
DSN 240-2363 Comm 210 536-2363
Pete.flatten@brooks.af.mil

Diane McCurtain, M.Ed.
Exercise Physiologist
USAF Fitness Program Office
311 HSW/YAMA
7909 Lindbergh Dr, Bldg 578
Brooks AFB, TX 78235-5252
DSN 240-2397 Comm 210 536-2397
Diana.mccurtain@brooks.af.mil

Barbara Palmer
Deputy Director, HSIAC
AFRL/HEC/HSIAC
2261 Monahan Way, Bldg 196
WPAFB OH 45433
DSN 785-5215 Comm 937 255-5215
Barbara.palmer@wpafb.af.mil

Michael Samuelson, Ph.D.
President and CEO, National Center for Health Promotion
PO Box 524
Saline, MI 48034-2292
313 429-3065 800 250-5105
nchp2@aol.com

James Schlub, Ph.D.
Fitness Program Manager
74 AMDS/SPGZ
5400 Buckner Road, Bldg 209, Area C
WPAFB OH 45433
DSN 787-9896 Comm 937 787-9896
james.schlub@wpafb.af.mil

Lisa Schmidt, Major, USAF, NC
Deputy, Health Promotion Operations
Office of the Surgeon General
AFMOA/SGZP
110 Luke Avenue, Room 405
Bolling AFB DC 20332-7050
DSN 297-0187 Comm 202 767-0187
Lisa.schmidt@usafsg.bolling.af.mil

Joanne Spahn, Lt Col, USAF, BSC
Executive Manager, PHSO
AFMOA/SGZZ
Building 915
Brooks AFB 78235
DSN 240-1977 Comm 210 536-1977
Joanne.spahn@brooks.af.mil

Ava Walker, Ph.D.
Research Scientist
Department of Kinesiology
University of Minnesota
612 626-8016
walke006@tc.umn.edu

OPENING SESSION

Introductory remarks were provided by Dr. Constable, including a background description of Air Force physical fitness and its current state. He said that the Air Force Surgeon General's goal is for the Air Force to have a fit and healthy force. He covered his involvement in Air Force physical fitness which began in 1995 when he acted as science consultant to the new Air Force Fitness Program Office. Since that time he has worked with HSIAC on various fitness projects each directed toward the general purpose of providing scientific analysis and support to Air Force physical fitness policy. He concluded his remarks by stating that it appears that a minority of Air Force personnel exercise adequately, which underlies the importance of addressing exercise compliance at this workshop.

Ms. Palmer followed with a briefing titled, "Developing the Review & Analysis--HSIAC's Involvement." She provided an overview of HSIAC's capabilities, customers, and products and then addressed HSIAC's past and present efforts for the US Air Force Fitness Program. These include projects on muscle strength and flexibility, firefighter fitness, job specific body composition, standards development, and the current effort on exercise compliance. Specifically, on exercise compliance, Ms. Palmer covered various theoretical models of exercise motivation and the reviewers' comments on the Review & Analysis.

Dr. Baumgartner, also of the HSIAC program office, addressed Air Force physical fitness science and research, based on his tenure with the program. He briefly covered the history of Air Force physical fitness since 1947, current Air Force fitness requirements, and offices with responsibilities in Air Force fitness. He described the USAFSAM/FEP proposed 2 tier concept for development of physical fitness standards, compared the current Air Force aerobic fitness standards to national reference norms, and briefly described the FEP efforts in the expansion of the Air Force physical fitness test battery. He concluded with a compilation of physical fitness issues and concerns stemming from FEP's Service Member Life Cycle Physical Fitness Integration Symposium Proceedings and a description of the green-amber-red (GAR) approach to reengineering the Air Force physical fitness and weight body fat management programs. A discussion on the topics of random physical fitness testing and member consequences for failure to meet standards ensued.

Major Schmidt addressed some Air Force physical fitness policy points. She reminded the group that the current Air Force Instruction (AFI 40-501) states that commanders may allow duty time for physical fitness training/activity. Duty time for physical fitness is authorized but is not mandated. She also noted that both line commanders and medical organizations both fund HAWC personnel.

Maj Schmidt described the upcoming, new, health promotion course that will be conducted for three weeks during September 2001. Maj Schmidt indicated that the Air Force needs a clinical link reinforcing the connection between physical activity and health. A return-on-investment demonstration for wellness activities is suggested.

DISCUSSION ON EXERCISE PROGRAM MOTIVATORS

Subject matter experts had previously reviewed the Review & Analysis titled, "Exercise Compliance: Does the US Air Force Have Unique Opportunities?" Several of these reviewers submitted comments and suggestions for discussion prior to the workshop:

- What is the current setting of a typical Air Force base? Which structure exists already to enhance physical activity opportunities?
- What social and physical and environmental changes can reasonably be implemented to support Air Force policy or physical activity/physical fitness?
- Behavioral Choice Theory (Epstein & Roemmich in *Exercise and Sports Sciences Reviews*, July 2001; Own, Leslie, Salmon & Fotheringham in *Exercise and Sports Sciences Reviews*, October 2000).
- What environmental determinants influence physical activity?
- What is the current status of physical activity among officers/enlisted and civilians?
- Could the Air Force implement a point system similar to the Army, as a means for those to strive further in their program and gain promotion points?
- Suggest pairing each member with a workout/fitness partner of their choice whom will exercise with them at least twice a week (trainers).
- What role do environmental determinants play on physical activity?
- A good example of cost and health benefits of a large scale program includes research provided by the GE engine systems in Evendale, Ohio.
- How can we make it a fun/social activity to increase adherence (group runs, exercise classes)?
- What hooks might be available--beating the Commander's run time might merit a few days off, free t-shirt, taking part in a training program for the member's first 5K run.

- What will click for the individual--base cycling or running club, vigorous swing dancing class.
- Consider incentive programs that take into account for minimal initial fitness level.
- Fitness trainer/motivators needed in Air Force facilities in addition to Unit Fitness Program Managers.

DISCUSSIONS

Dr. Constable facilitated the day's discussions. The group's input is encapsulated here, grouped according to the following topics:

- Awards
- Education and Marketing to Troops and Commanders
- Physical Fitness Testing
- Mandatory Physical Fitness Activity
- Providing a Variety of Activities
- Other Techniques

AWARDS

Cmdr Carlson said that MWR can provide rewards and that command funds are available for this in the US Navy. He also said that use of the Navy pennant was a successful approach.

Lt Col Spahn said that a 500-Club was successful and grew, giving points and awards for activity.

Dr. Schlub suggested that passes issued as rewards for fitness activity should be used for leave that is activity-oriented.

Dr. Baumgartner stated that passes, military ribbons, and other rewards were discussed during the USAFSAM/FEP Air Force-wide briefings in 1999. Passes were favored over ribbons by NCOs.

EDUCATION AND MARKETING TO TROOPS AND COMMANDERS

Dr. Walker said that we need to encourage health education and cited some effective programs.

Lt Col Spahn suggested that the Air Force use educational resources available to market the benefits of exercise.

Dr. Dunn, Dr. Constable and Dr. Baumgartner addressed the question of how much physicians counsel patients on physical activity. Consensus was that little occurs, and when it does, it focuses on diabetes.

Maj Schmidt agreed that using a metric for comparing individual unit fitness levels would be effective in encouraging fitness. She suggested providing an aggregate fitness metric, based on fitness test scores, immunization status, number of sick days used, etc.

Maj Schmidt suggested planting the seed for increased physical activity via briefings, and promoted the idea that an action officer is needed in this area.

Dr. Baumgartner said that the study by OPHSA (Robbins, *et. al.*), which indicates that elevated BMI among the active duty Air Force population costs \$28 million annually should have an impact on commanders and policy makers.

Dr. Constable believes that improved productivity with increased levels of physical activity will get the attention of military leaders, and may provide more positive attention among military units.

Dr. Constable and Dr. Samuelson discussed presenteeism. Dr. Constable asked if there were firm metrics in commercial world. Dr. Constable stated that we need that outcome data for military briefings. Dr. Samuelson responded that Surgeon General Satcher states that the incidence of diabetes would decrease by 30% with sufficient physical activity.

Maj Schmidt suggested the use of a command metric, and Dr. Dunn proposed illustrating a dose response curve that shows the benefit of increased activity. She indicated that Air Force standards are too low to ensure a state of general health.

Dr. Constable indicated that morbidity, cardiovascular disease, and number of sick days would be a useful metric.

Maj Schmidt asked if this data were available. Could we correlate number of sick days and VO₂ max?

PHYSICAL FITNESS TESTING

Maj Schmidt believes that testing provides an incentive, and brought up the idea of random testing. Dr. Walker and Dr. Constable also asked about the effectiveness of random testing. Dr. Baumgartner stated that FEP proposed random testing during the Air Force-wide fitness briefings and received strong acceptance.

Dr. Samuelson said testing should continue and awareness should be emphasized at pipeline training levels as well as throughout one's career. He suggested that a change in culture must come first, and then an increased awareness of the benefits of fitness.

Lt Col Spahn indicated that there is too great an emphasis on the physical fitness test.

MANDATORY PHYSICAL FITNESS ACTIVITY

Ms. McCurtain suggested that making physical activity mandatory would help provide a positive context for working out.

Maj Schmidt described changes in Hurlburt AFB compliance when physical activity became mandatory, and when a variety of activities were offered.

Dr. Samuelson echoed these sentiments, citing the effectiveness of no-smoking policies.

Ms. McCurtain stated that being granted mandatory gym time is so positive that it provides a disincentive to pass the physical fitness test.

PROVIDING A VARIETY OF PHYSICAL FITNESS ACTIVITIES

Lt Col Spahn suggested that we need more than one vanilla fitness activity, that offering a variety of physical activities is essential in order to keep interest.

Dr. Schlub said that more than 500 people showed up at an awareness event, and that 60 personal visits were subsequently scheduled.

Lt Col Spahn advocated a wide range of physical activity options, and said that a 500- Club was successful and grew, giving points and awards for activity.

Dr. Walker voiced concerns about "a softer military." A recent Washington Times article was distributed which documented this situation.

OTHER TECHNIQUES

Ms. McCurtain suggested that briefing unit fitness relative to the organization's overall fitness level would be an effective tool.

Dr. Dunn also believes that using unit ratings to make commanders responsible for fitness would be effective.

Dr. Walker believes that senior enlisted personnel can provide great motivation.

Dr. Samuelson indicated that peer pressure is the greatest motivator of all.

Dr. Schlub stated that intrinsic motivation is important.

Several in the group indicated that possibilities for increasing morale in this area would be working out with a partner, implementing social and fun activities, and having a fitness mentor.

Dr. Samuelson said that comparing a person's fitness profile with others of the peer group would be effective.

Dr. Walker and Dr. Baumgartner agreed that using a graded fitness test score, not just a pass/fail, would be motivating.

Dr. Schlub believes that a special fitness trainer course would be beneficial.

Maj Schmidt believes that charting progress and journaling are effective. Group activities and mentoring are also good for some populations.

Cmdr Carlson asked which military programs were most successful. He said that the Navy understands that the purpose of its fitness program is to promote health, but that the program in its applied sense is based on a military appearance.

DISCUSSION LEADING TO CONSENSUS

Dr. Constable stated that an efficacious way to attack the overall issue of exercise compliance is to concentrate on converting no-exercisers to minimal exercisers-- that is, to encourage people with no exercise activity to undertake some minimal level of activity. The literature refers to this population as "contemplators."

Dr. Dunn suggested we consider a non-traditional approach to encourage the behavior and intentions of people who currently do not exercise.

Dr. Constable asked what would be the best way to approach this population. Dr. Dunn suggested that a five-question survey of current physical activity status would identify this population. Dr. Samuelson indicated that we could assess status, and then direct information to them that would be tailored to the individual. Dr. Samuelson said that data support that tailoring information to a contemplator will increase levels of activity.

Mr. Flatten suggested that instead of a survey, the intervention could be based on the cycle ergometry test score. Lt Col Spahn indicated that increasing the testing burden on the HAWCs could be problematic. Dr. Constable and Dr. Samuelson suggested that the proposed steps could be automated as part of the cycle ergometry test. The question arose as to whether people would respond honestly and accurately.

Lt Col Spahn concurred about the value of using this step-care approach, and thought that instituting an e-mail system might not be too labor-intensive.

Dr. Samuelson asked about the current state within the Air Force—is there a consistent program across the Air Force?

Lt Col Spahn indicated that the Air Force fitness program is currently too decentralized, and lacks tool kits.

Maj Schmidt asked if data exist on email as a physical activity intervention? Dr. Baumgartner stated that some studies in the literature report positive results with email intervention, and OPHSA is currently initiating a one year physical activity/nutritional intervention at five Air Force bases.

Dr. Dunn suggested that a newsletter on fitness activities and fitness progress would be beneficial, and Ms. Palmer suggested an electronic newsletter.

All agreed that a three-day pass on achieving an improvement in activity level would be effective.

Dr. Constable and Dr. Samuelson agreed that it would be appropriate to determine what resources might be associated with readiness staging, email intervention, and a decision tree.

SUMMARY / CONSENSUS

The group agreed upon the following exercise compliance initiatives for the Air Force to address.

ASSESS CURRENT STATUS

- Assess the current status of physical activity and exercise among force members.
- Conduct a readiness stage assessment, potentially during annual fitness testing. Ask simple and non-threatening questions, *e.g.*, where are you in your daily exercise routine?, do you believe you can improve? This could be followed up by information delivered via electronic mail or through a web site.
- Assess existing environment and opportunities on Air Force bases to support and enhance physical activity opportunities.
- Assess leadership belief in and support for physical activity.
- Determine the main barriers to Air Force's goal of having a fit and healthy force.
- Determine the social, physical, and environmental changes that the Air Force can reasonably implement to influence physical activity and physical activity policy.
- Assess long term adherence to an exercise program.

CONDUCT EDUCATION / MARKETING / TRAINING PROGRAMS

- Encourage the integration of physical activity into daily life.
- Market to Air Force leadership and members the efficacy and benefits of physical activity/exercise on health, including cost of inactivity, decrease in productivity, and health benefits.
- Market what HAWCs, Services and others already doing in the physical activity/exercise arena in addition to the above.
- Target five levels of staff with this information: senior leadership, senior NCOs, mid-level supervisors, health care providers, and the member.
- Employ readiness-stage-based approach in education and training.
- Emphasize the vital leadership/commander component in promoting physical activity/exercise/physical fitness:
 - ◊ Employ useful metrics to inform and convince leadership.
 - ◊ Ensure timely results and reports.

- ◊ Include qualitative and quantitative analyses demonstrating return on investment.
- ◊ These leadership approaches to physical activity in the Air Force are recommended: 1) leadership by example and 2) an approach that supports indoctrination into a fitness program, testing for current health and fitness status, and assistance to meet requirements of program
- Conduct education during fitness testing; perform educational triage post-testing since typical Air Force HAWC personnel resources are not sufficient to handle volume of members on fitness improvement programs one-on-one. Provide an assessment/exercise compliance toolkit to Health and Fitness Program Managers to help establish standardization and reduce disparity. Pilot test these educational trials.
- For marketing consider use of electronic-mail, decision-tree-based chat room, and interactive newsletter.

DISCOVER AND EMPLOY LESSONS LEARNED AND BEST PRACTICES

Suggested practices include:

- Goal setting, since it is important to establish realistic activity and fitness goals that take in to account initial fitness level and focus on lifestyle exercise behavior.
- Technique of journaling or charting exercise progress. Track and assess the type and amount of physical activity on a regular basis to monitor success and participation rates.
- Group or team exercise participation that incorporates camaraderie and esprit de corps; use of effective group activities such as partner pairing, fun-social group physical activities, mandatory group physical activity.
- Mentoring via unit (wing or squadron) fitness trainers may be effective for some members (in addition to Unit Fitness Program Managers).
- Tailored programs.
- Assist in scheduling convenient times and finding locations of a fitness facility or other location at which the member will choose to exercise.
- Combine fitness and weight/body fat assessments and counseling in policy.
- Rewards and Incentives:
 - ◊ Employ balanced combination of "carrot and stick" motivation.
 - ◊ Potentially use passes, ribbons, unit awards/recognition.
 - ◊ Incorporate these test scores on officer and enlisted performance reports: annual test score, average of past three to five years, recognition of significant improvement. Consider fitness score as part of promotion point system.

- ◊ Take into account minimal initial fitness level.
- ◊ Testing can be an incentive; implement a point system, rather than pass/fail only, similar to the US Army's procedure, to motivate members.
- ◊ Increase test frequency.
- ◊ Strong consensus on use of random testing. Test this variable at four or five wings/bases with a varied percentage chance of being tested. Measure pre- and post-trial behavior change as well as pre- and post-trial fitness scores.

EVALUATE PHYSICAL FITNESS TESTS AND STANDARDS

- Increase the commonality of fitness tests and standards across service member life cycle.
- Increase standardization and connectivity of fitness program tests, standards, training, and teaching curriculum across accession and training schools and programs.
- Seek alternatives for repeat failures. Also establish and enforce policy for administratively handling repeat/recalcitrant failures.
- Strong consensus on need for gradation in fitness test metrics, not pass/fail only. Also need a metric for both health and performance test standards.

JUSTIFY AND IMPLEMENT PROGRAMS

- After justifying a program for implementation, determine program goals and objectives by surveys to assess needs and interests. Follow-up on routine basis with member assessment and feedback.
- Employ fitness testing and safety health screening to provide baseline to participant and obtain exercise beliefs.
- Provide education and adequate supervision in the early stages of the exercise program so that the individual will recognize benefits and meet reachable goals.
- Employ electronic avenues for delivery of fitness-related information.
- The Air Force may want to introduce more frequent testing with the aim of preparing members for annual fitness testing.

CONDUCT PROGRAM MAINTENANCE

- After an exercise program is started, shift the member's focus, and provide specific motivational support. Address long term absences and consider penalties.

- Assess participation and activity. Measure participation rate, adherence rate, and daily attendance.
- Be careful with members' military travel requirements; also, consider flex-time work schedules to assist members' opportunities to exercise.
- Maintain good communication and schedule regular follow up sessions for continued adherence.

INTEGRATE PROGRAM SUCCESS FACTORS

- Develop support groups to encourage member exercise.
- Consider fitness skill level and choose an activity that has greater chance for successful outcome.
- Beware of past injuries—focus on identification and prevention.
- Select convenient times and locations to make exercise a natural way of life.
- Member needs to understand the satisfaction that can be derived from exercise. Goal setting with realistic understanding of time and effort to reach goals is critical. Meeting goals leads to success which in turn leads to adherence.

MOTIVATIONAL STRATEGIES

- Seek ways to challenge members. Self-motivation, peer pressure, healthy image, social interaction, and variety of choices can all lead to adherence.
- Attitude toward activity is important. Intrinsic enjoyment is provided by choices of programs to meet varying concepts of fun.
- Perceived competence can be a barrier and thus presents a challenge to HAWCs and fitness centers to make physical activity attractive especially in beginning stages.
- Extrinsic motivators, such as reward systems, are important to facilitate behavior change and adherence, especially early in a program.

ATTRITION AVOIDANCE

- Air Force must be aware of common reasons for attrition and work to avoid them.
- Distinguish true barriers from both perceived barriers and motivation deficits.

OCCUPATION-RELATED FITNESS AND EXERCISE ADHERENCE

- Recommend Air Force senior leadership recognize and members accept the value of implementing and enforcing occupational-based physical fitness program.
- Develop physical fitness training for those occupations where fitness affects duty performance.

OVERALL SUMMARY/CONSENSUS

The group of subject-matter experts agreed that, between the above priorities and available resources, two areas, **Conduct Education / Marketing / Training** and **Discovering and Employing Lessons Learned and Best Practices** are most essential although more resource intensive. The group also agreed that implementing readiness-to-change stage assessment as soon as possible was important

APPENDIX A---Agenda August 16 Exercise Compliance Workshop

Exercise Compliance Workshop August 16 2001

Performance Enhancement Division
Force Enhancement Department
USAF School of Aerospace Medicine
Brooks Air Force Base, TX

Agenda

7:15am

Van departs Holiday Inn Express

7:30am

Van Arrives USAFSAM Brooks Air Force Base

7:30—8:00am

Breakfast and Registration

8:00am

Introduction and Administrative Issues

Dr. Stefan Constable

Overview—Air Force Fitness Program and HSIAC Projects

Ms. Barbara Palmer

Overview—Air Force Fitness Program History and Status

Dr. Neal Baumgartner

Overview—HAWCS Re-Engineering

Maj Lisa Schmidt

Introduction to Discussion

Dr. Stefan Constable

Noon—Working Lunch

Discussion Continues

3pm

Break

Discussion Continues

4pm

Summary & Wrap-Up

5pm

Van departs for airport

APPENDIX B-- Reviewers' Suggestions for Discussion Topics

Several questions were posed to the subject-matter experts who read the Draft Review & Analysis, also attended the subsequent workshop. Here are their suggestions:

- What is the current status of physical activity among officers/enlisted and civilians?
- What is the current setting of a typical Air Force base? Which structure exists already to enhance physical activity opportunities?
- What social and physical and environmental changes can reasonably be implemented to support Air Force policy or physical activity/ physical fitness?
- Behavioral Choice Theory:
 - Epstein & Roemmich *Exercise and Sports Sciences Reviews* July 2001
 - Own, Leslie, Salmon & Fotheringham *Exercise and Sports Sciences Reviews* October 2000
- What environmental determinants influence physical activity?
- Could the Air Force implement a point system similar to the Army, as a means for those to strive further in their program and gain promotion points?
- Suggest pairing each member with a workout/fitness partner of their choice who will exercise with them at least twice a week (trainers).
- What role do environmental determinants play on physical activity?
- A good example of cost and health benefits of a large scale program includes research provided by the GE engine systems in Evendale Ohio.
- How can we make it a fun/social activity to increase adherence (group runs, exercise classes)?
- What hooks might be available—beating the Commander's run time might merit a few days off, free t-shirt, taking part in a training program for the person's first 5K run.
- What will click for the individual---base cycling or running club, vigorous swing dancing class.
- Consider incentive programs that take into account for minimal initial fitness level.
- Fitness trainer/motivators needed in Air Force facilities in addition to Unit Fitness Program Managers.

Summary of Discussion on the Need for and Benefit of Establishing a Centralized Fitness/Weight Database

Step 1: Discuss the need for and benefit of establishing a centralized repository for military services physical fitness and weight management data.

Step 1, Issue 1. Why is it important to establish a centralized database for housing the military services' physical fitness and weight management data?

LTC Friedl, Dr. Foster, and Mr. Gleason spoke during the first and second days of the workshop, indicating that the upcoming revised Department of Defense Instruction 1308.3 would likely mandate that the services collect and report several fitness and weight parameters.

LTC Friedl started the discussion on this topic by indicating that the database entry would be controlled by the individual services, with data being handed off to Mr. Gleason's department for Congressional reporting. The report to Congress would be an annual update on the fitness status of the force. LTC Friedl indicated that we are signed up to do this!

Specific uses of the database are outlined in Step 1, Issue 3 below.

Step 1, Issue 2. What key data elements are to be included in the database?

LTC Friedl and Mr. Gleason stated that the new DoD Instruction would outline the basic requirements for data reporting and that these are not yet known. LTC Friedl suggested that the database would gather anthropometry measures, or at least weight or BMI, and height. Also, actual fitness test scores would be more useful than pass/fail in determining the validity of standards.

Dr. Guo asked if it would be of interest to know the characteristics (rank, age, demographics) of those who fail or get flagged for fitness/weight scores. LTC Friedl and Mr. Gleason indicated that these would likely be included in the new Instruction. Dr. Hodgdon felt that rank would be a useful factor for research purposes.

LTC Friedl asked if injuries were still a focus of the upcoming Instruction, and Mr. Gleason indicated that injury rates would perhaps be collected down the road, when the reporting process gets more automated. LTC Friedl said that it would be of interest to know if attrition is due to people getting injured because they are not fit, or whether they are getting injured in an effort to meet fitness standards, such as back injuries due to required sit-ups. He went on to say that other future database interests will be merging with medical hospitalization databases, outpatient treatment records, and the collection of data on personal habits such as smoking.

Dr. McDaniel asked if it would be of interest to document whether those assigned to a remedial program adhered to the program, even if they were not ultimately successful, and LTC Friedl replied that this data would be of value.

Mr. Gleason said that the focus now would be to get the four services to agree to the measures outlined in the upcoming Instruction. He stressed that it would be important to the Services to know that the data would be both collected and used in a judicious manner.

Maj McGuire felt that the two data pieces that would be most important to commanders were days lost to injury and attrition.

Dr. Ryan suggested that some important questions could be answered through the data of thousands of military individuals, but that certain problems could be avoided by using a sampling system to answer other questions. Dr. Baumgartner indicated the importance of individual, rather than composite, data to commanders who might be interested in comparing one group of individuals with another.

Dr. Flegal thought there were two separate problems in today's system that might bear analysis as the joint services database is formulated. The first is to determine if the standards are being applied fairly and the second is to determine the effect of this unfairness. If it is not causing a problem, does this imply that the standards are not the best?

Step 1, Issue 3, Who would use such a database and for what purposes?

LTC Friedl opened the afternoon session of the second day of the workshop by indicating that a database of fitness and weight statistics would document how well and how fairly a fitness regulation was working. Such a database would answer these questions: "How effectively are we meeting fitness goals for all ages and both genders? Do you have data that shows that you have an equal distribution of people being affected adversely by a given fitness program standard? Are gender and age significant predictors of adverse outcomes?"

Mr. Gleason reiterated that a centralized database would reveal whether programs are working, how many people are in remedial programs, and how many of the people in remedial training graduate successfully.

LTC Friedl went on to say that more intensive intervention programs could be designed if we knew how many personnel were separating due to poor fitness and weight scores.

LTC Friedl posited how interesting it would have been had the Navy had a database in place to record weights during the two years when the weight control program was not in place.

Lt Cohen said that, to a commanding officer, the most important statistic would indicate the degree of deployment that was possible for a given group. If individuals are not deployable, is that due to injury, or out-of-limits body fat?

Mr. Gleason replied that the DoD wants to promote general health and fitness readiness; general health to include the efforts of the IOIPC as well as injury prevention. LTC Friedl requested that we eventually establish good definitions for readiness, health, and fitness. LCDR Carson said that it will be important to define fitness for what activity or end state.

Maj Schmidt reports that she gets a lot of calls asking about the rate of injury relative to state of fitness. Maj McGuire asked if physical fitness programs cause more injuries than they prevent.

Dr. Constable said that a centralized database would be a good way to provide compelling cost-benefit arguments if the goal is to sell a new program, or change an existing program. LTC Friedl agreed, giving as an example, "How much would we save if we had Weight Standard A rather than Weight Standard B?"

LTC Friedl indicated that one of the main users of the database will be key administrators, and then the data will go way up the chain. If the data are to be used by researchers, then special human use considerations will come into play.

Dr. Guo has participated on Institutional Review Board committees and feels that substance use issues are scientifically important to fitness and wellness programs.

Save these for section on QA

LTC Friedl said that the upcoming DoD Instruction will encourage more consistent measuring techniques

Dr. Robbins spoke on behalf of military personnel, asking that fair and consistent testing measures be stressed so that military personnel could be assured of an equitable system